REMARKS

The application includes claims 1-30 prior to entering this amendment.

The examiner objeeted to claim 30 as having a preamble not matching that of the claim on which it depends.

The examiner rejected claims 19-24 under 35 U.S.C. § 112, second paragraph.

The examiner rejected claims 25-30 under 35 U.S.C. § 101.

The examiner rejected claims 10-24 and 35-29 (sic) under 35 U.S.C. § 103(a) over Sheng, et al. (U.S. Patent No. 6,753,982) in view of Horiuchi, et al. (U.S. Patent No. 6,445,469).

The examiner rejected claims 1, 3-4, 6-7, and 9 under 35 U.S.C. § 103(a) over Horiuchi in view of Watanabe, et al. (U.S. Patent No. 5,050,231).

The examiner rejected claims 2, 5, and 8 under 35 U.S.C. § 103(a) over Horiuchi in view of Watanabe and Sheng.

The applicant amends claims 1, 3, 4, 6, 7, 9-10, 13, 15, 17, 19-23 and 25-30.

The application remains with claims 1-30 after entering this amendment.

The applicant adds no new matter and request reconsideration in view of the following remarks. The applicant points out that the claimed subject matter may be patentably distinguished from the cited reference(s) for multiple reasons; however, the following remarks are believed to be sufficient. Likewise, it is noted that the applicant's failure to comment directly on any of the positions asserted by the examiner in the office action does not indicate agreement or acquiescence with those asserted positions.

Interview Summary

The applicant thanks Examiner Kau and his supervisor Examiner Poon for their time during a phone interview on November 30, 2007 at 3:00 P.M. Eastern time.

The rejection of claims 19-24 under 35 U.S.C. § 112 was discussed, and it was agreed that the examiner would consider the applicant's providing, as part of this paper, supporting references to the application for the recited means.

The rejection of claims 25-30 under 35 U.S.C. § 101 was discussed, and it was agreed that the claims would be amended to obviate the rejection.

The rejections under 35 U.S.C. § 103(a) were discussed, and some embodiments of the applicant's disclosure were presented.

The examiners agreed that claim 1 (and similar claims) were allowable over the cited references.

Claim Objections

The examiner objected to claim 30 as having a preamble not matching that of the claim on which it depends. The applicant herein amends claim 30 to obviate this objection.

Claim Rejections Under § 112

The examiner rejected claim 19-24 under 35 U.S.C. § 112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The applicant traverses the rejection for the reasons that follow.

The examiner indicates:

Regarding claim 19, the word "means for" is preceded by the words "scanning", "supporting", and "processing" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means" it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See Ex parte Klumb, 159 USPQ 694 (Bd. App. 1967).

Applicant invokes 112 6th in claims 19-24. However, applicant's disclosure does not provide any detail structural information for the means-plus function. Without defining the structure for means-plus functions, one skilled in the art would not be able to understand what structure will perform for the recited function. Therefore any means that perform the equivalent functionality will be reasonable utilized by one of ordinary skill in the art. See MPEP Section 2181.[1]

The examiner's two points above are addressed separately in the following remarks.

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[1] Office Action, page 3.

Regarding the first above paragraph of the Office Action, the examiner appears to be misapplying MPEP form paragraph 7.34.11. The Examiner's Note following this form paragraph clarifies why it is inapplicable in this instance:

> 1. It is necessary for the words which *precede* "means" to convey a function to be performed. For example, the phrase "latch means" is definite because the word "latch" conveys the function "latching." *In general, if the phrase can be restated as "means for _____," and it still makes sense, it is definite.*[2] (emphasis added)

The applicant's elements in claims 19-24 are *not* in the form of a function preceding "means," and are all of the form "means for" a function, and thus this portion of the rejection is traversed.

Regarding the second above paragraph of the Office Action, the applicant refers the examiner to the following examples of support for the recited means, all taken from the application as filed.

One example of a "means for scanning" is disclosed in paragraph [003]: "the chassis 114 can be moved along the direction of arrow 105 in order to scan the document 112, as shown in FIG. 1."

One example of a means for supporting is disclosed in paragraph [003]: "The scanning platform 110 can also be situated on the top 108, so as to align a document 112."

One example of a means for referencing is disclosed in paragraph [019]: "In this embodiment, the longitudinal black and white pattern 218 is specifically located on an inner wall of the top 208 on a side near the scanning platform 210 to allow the scanner 200 to perform image brightness compensation when the chassis 214 scans the document 212."

One example of a means for image compensating is disclosed paragraph [017]: "FIG. 3 is a flow diagram schematically illustrating an image compensating method according to a first preferred embodiment of the present invention."

Accordingly, the rejection of claims 19-24 is traversed.

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[2] http://www.uspto.gov/web/offices/pac/mpep/documents/0700_706_03_d.htm

Claim Rejections Under § 101

The examiner rejected claims 25-30 alleging that the claimed invention is directed to non-statutory subject matter. The applicant disagrees with the necessity of reciting "computer-readable" vs. "machine-readable" and refers the examiner to the last paragraph on page 55 of the cited "Interim Guideline for Examination of Patent Application for Patent Subject Matter Eligibility," Annex IV:

> "The term machine includes every mechanical device or combination of mechanical device or combination of mechanical powers and devices to perform some funetion and produce a certain effect or result." Corning v. Burden, 56 U.S. (15 How.) 252, 267 (1854). A modern definition of machine would no doubt include electronic devices which perform functions. Indeed, devices such as flip-flops and computers are referred to in computer science as sequential machines.[3]

The applicant also refers the examiner to the multiple granted patents that use the term "machine-readable" in their claims. For example, claim 14 of Garakani (U.S. Patent No. 7,298,298), or claim 17 of Liu, et al. (U.S. Patent No. 6,920,398).

Nevertheless, in order to advance prosecution, the applicant amends claims 25-29 to recite "computer" instead of "machine." Accordingly, this rejection is obviated.

Claim Rejections Under § 103

The examiner rejected claims 10-24 and 35-29 (sic) as being unpatentable over Sheng in view of Horiuchi. (The text of the office action clarifies that this rejection applies to claims 10-30.) The examiner rejected claims 1, 3-4, 6-7, and 9 as being unpatentable over Horiuchi in view of Watanabe. The examiner rejected claims 2, 5, and 8 as being unpatentable over Horiuchi in view of Watanabe and Sheng. The applicant traverses the rejections for the reasons that follow.

Rejection of claims 1, 4, and 7

Independent claims 1[4], 4[5], and 7[6] are all rejected on the same grounds. The examiner indicates that

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[3] "Interim Guideline for Examination of Patent Application for Patent Subject Matter Eligibility", Annex IV, page 55.
[4] Office Action, pages 14-15.
[5] Office Action, page 16.
[6] Office Action, page 16.

Horiuchi differs from claim 1, in that he does not expressly teach that determining a compensational gray level value with respect to the actual gray level value each of the pixels based at least in part on the correctional gray level for complete black, the correctional gray level value for complete white.[7]

The examiner then indicates that

Watanabe discloses determining a compensational gray level value (produces gamma-corrected gray-level, col 3, lines 55-65) with respect to the actual gray level value (gray-level data produced by scanning and A/D converting, Fig. 1, col 3, lines 40- 51) each of the pixels based at least in part on the correctional gray level value for complete black (col 7, lines 28-47), the correctional gray level value for complete white (col 7, lines 28-47).[8]

Respectfully, the examiner is misconstruing the teachings of Horiuchi and Watanabe.

The applicant first points out that none of the references teach or suggest "a longitudinal white pattern" (as recited in claim 1, with a similar element in claim 4) or "a longitudinal black pattern" (as recited in claim 1, with a similar element in claim 7). For example, Horiuchi's scale line is longitudinal, but is *not* a "white pattern" or a "black pattern," and instead comprises "alternations of high-density and low-density divisions that are arranged one after another at a distance interval equal to the least pitch readable by the document-image reading device."[9] That is, Horiuchi's scale line is striped in the longitudinal direction, and thus is clearly not the same as the applicant's "longitudinal white pattern" or "longitudinal black pattern."

The examiner appears to be reading the applicant's "determining a compensational gray level value" (as recited in claims 1, 4, and 7) on Watanabe's gamma correction. The applicant refers to the following portions of Watanabe:

The operation of the gamma correction means 24 is illustrated in FIG. 7. The jnput gray-level data B, shown as eight-bit data, are converted to six-bit gamma-corrected gray-level data G according to a gamma curve S2. The purpose of this correction is to compensate for non-linearity in the response of the line sensor 10.[10]

The applicant observes that Watanabe's gamma correction appears to be a simple mapping that is the same for all data being mapped. The applicant's claim 1 (with similar elements in claims 4 and 7) recites "determining a compensational gray level value with respect to the actual gray level value for each of the pixels based at least in part on a respective one of the correctional gray level values for complete black, a respective one of the correctional gray level values for

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[7] Office Action, pages 14-15.

[8] Office Action, page 15.

[9] Horiuchi, Abstract.

[10] Watanabe, col. 7, lines 28-34.

complete white, a theoretical gray level value for complete black, a theoretical gray level value for complete white, and the actual gray level value for each of the pixels." This is clearly not a simple, fixed mapping as in Watanabe, as the compensational gray level value is based not solely on "the actual gray level value" but also on "correctional gray level values" which in turn are "based at least in part on the longitudinal black and white patterns" (as recited in claim 1, with similar elements in claims 4 and 7). Thus, Watanabe does not teach or suggest the applicant's "determining a compensational gray level value" (as recited in claims 1, 4, and 7).

Accordingly, as the cited references alone or in combination do not teach or suggest all of the elements of any of claims 1, 4, and 7, these claims are in condition for the examiner's allowance for at least this reason.

Rejection of claims 10, 19, and 25

Independent claims 10[11], 19[12], and 25[13] are all rejected on the same grounds. The examiner indicates that Sheng

> does not teach that a reference pattern; a processor configured to determining actual gray level values for each pixel of a scanned image of the document; determine compensational gray level values for each pixel of the scanned image; and compensate the scanned image using the compensational gray level values.[14]

The examiner then indicates (emphasis added) that

> Horiuchi discloses a document image reading device, in that he teaches and suggests that a reference pattern (Horiuchi discloses that the chart 17 is read by the image reading means in such a way that the longitudinal direction of the chart may meet with the feed direction of the image reading means, col 8, lines 49-51, and Chart 17 of Fig. 8); a processor (Abstract) configured to determine actual gray level values for each pixel of a scanned image of the document (col 3, lines 18-26, determining a gray-level change of each scale line, & col 13, lines 1-10; measuring black line or white line); determine compensational gray level values for each pixel of the scanned image (examine and compensate the whole image, col 13, lines 16-26); and compensate the scanned image using the compensational gray level values (compensate the whole image by using the correction factor so that all the white (or black) portions show a constant value, col 13, lines 16-44).[15]

Respectfully, the examiner is misconstruing the teachings of Horiuchi.

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[11] Office Action, pages 5-6.
[12] Office Action, page 11.
[13] Office Action, page 13.
[14] Office Action, page 5.
[15] Office Action, pages 5-6.

The applicant first points out that later in the Office Action, the examiner indicates (emphasis added):

> Horiuchi differs from claim 1, in that he <u>does not expressly teach that determining a compensational gray level value</u> with respect to the actual gray level value each of the pixels based at least in part on the correctional gray level for complete black, the correctional gray level value for complete white.[16]

This second interpretation of Horiuchi appears to be in conflict with the prior construction. The applicant agrees with the later construction – that Horiuchi does *not* teach determining "compensational gray level values for each pixel of the scanned image based at least in part on the reference pattern" as recited in the applicant's claim 10 (with similar elements in claims 19 and 25). The applicant expands on this point in the following remarks.

> The applicant refers to the following portions of Horiuchi:
>
> A document-image reading device according to another aspect of the present invention can examine white (or black) levels of a whole image of an equal-pitch scale and compensate the whole image by using the same correction factor so that all the white (or black) portions may show a constant value.[17]
>
> The device can also examine the white (or black) levels of the equal-pitch scale image data and determine a specified correction value separately for each white (or black) portion so that the portion may have a preset constant value. This makes it possible to analyze the speed fluctuation without decreasing the analysis accuracy even if the white (or black) level of the scanner varies during the scanning.[18]
>
> In this case, the amount of calculation increases but the white level is real time measured and a correction value can be immediately determined with no need of waiting until the whole image data are measured. This enables designing a system capable of outputting the speed fluctuation analysis result just after reading the image.[19]

As the cited portions above make clear, Horiuchi's "whole image" (and similarly, "image data") is an image of Horiuchi's scale line, *not* a scanned image of a document. In the first portion above, Horiuchi adjusts "the whole image by using the same correction factor" (again, where the "whole image" is an image of the "equal-pitch scale" and not of a document). In the second portion above, Horiuchi uses "a specified correction value separately for each white (or black) portion so that the portion may have a preset constant value," where the portions are portions of the image of the scale line. Neither of these examples, and nowhere in the entirety of Horiuchi, is there a determination of "compensational gray level values" "based at least in part on the

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[16] Office Action, pages 14-15.
[17] Horiuchi, col. 13, lines 16-21.
[18] Horiuchi, col. 13, lines 31-37.

reference pattern." Horiuchi's corrections (as applied to Horiuchi's scale line) are simplified because Horiuchi's scale line is known to be solely black and white. Horiuchi does not teach or suggest any technique to correct a gray level. Horiuchi does not teach or suggest a way to use Horiuchi's scale line to correct other scanned data. Thus, Horiuchi does not teach or suggest any way to "determine compensational gray level values for each pixel of the scanned image based at least in part on the reference pattern."

Accordingly, as the cited references alone or in combination do not teach or suggest all of the elements of any of claims 10, 19, and 25, these claims are in condition for the examiner's allowance for at least this reason.

As dependent claims 2-3, 5-6, 8-9, 11-18, 20-24, and 25-30 incorporate all of the elements of a respective one of independent claims 1, 4, 7, 10, 19, and 25, the applicant also traverses their rejections for at least this reason.

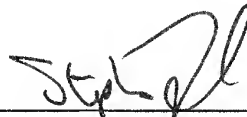
[19] Horiuchi, col. 13, lines 38-44.

Conclusion

For the foregoing reasons, the applicants request reconsideration and allowance of the remaining claims. The applicants encourage the examiner to telephone the undersigned at (503) 224-2170 if it appears that an interview would be helpful in advancing the case.

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